Analysis Summary

Catalina Medina

10/21/2020

```
##
## Standard deviations and 0.95 confidence intervals:
##
##                                      std.dev      lower      upper
## s(adj_time_days)                  1.99948716 1.20814530 3.30916233
## ti(adj_time_days,adj_med_income)1 0.09792246 0.04112418 0.23316713
## ti(adj_time_days,adj_med_income)2 0.03053270 0.01138198 0.08190543
## s(zip)                            0.17438869 0.14318657 0.21239015
##
## Rank: 4/4
```

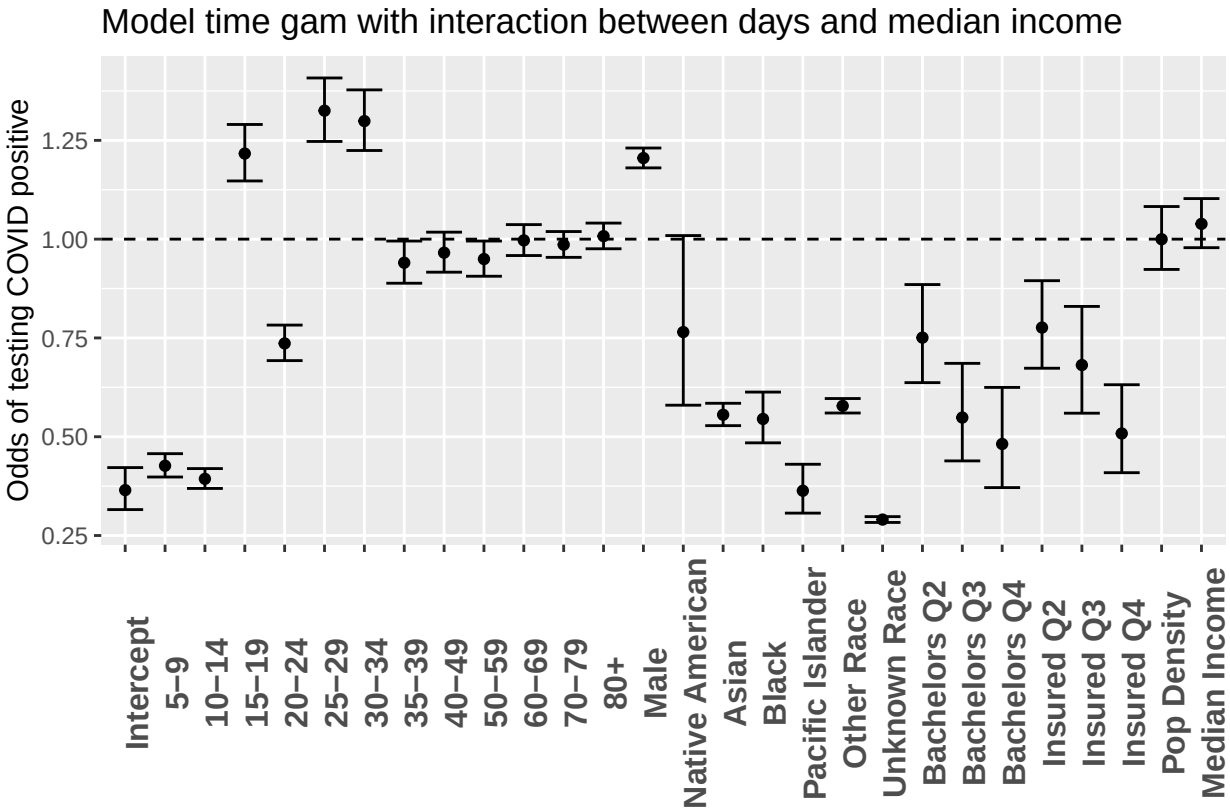
	Effective DF	Ref. DF	Chi Sq.	p-value
s(adj_time_days)	8.743682	8.963131	5943.5693	0
ti(adj_time_days,adj_med_income)	11.226475	16.000000	594.3739	0
s(zip)	65.150907	78.000000	1248.3560	0

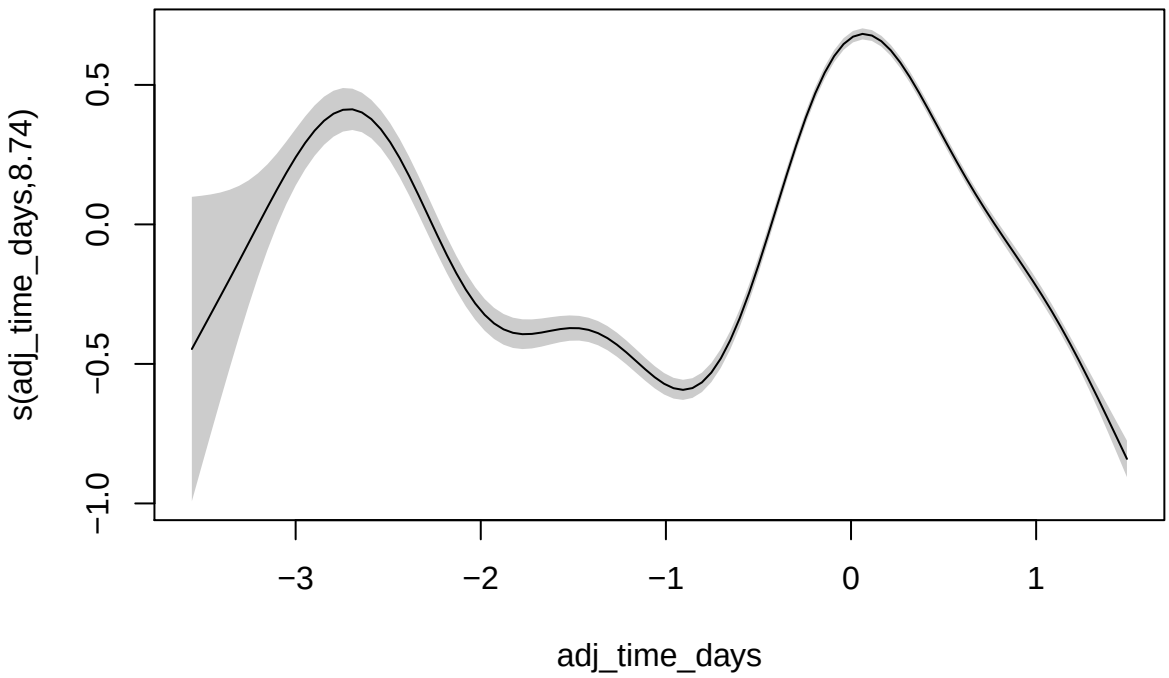
Table 1: GAM regression estimation of odds of testing positive for covid in Orange county from March 1st to August 16, 2020. Model has a smooth term for time and an interaction between median income and time.

	Counts		Adjusted Odds*
	COVID19+	Total	with (95% CI†)
Age			
0-4	513 (1.19%)	5479 (1.29%)	Reference
5-9	909 (2.11%)	5625 (1.33%)	0.427 (0.4, 0.46)
10-14	2315 (5.38%)	16194 (3.82%)	0.393 (0.37, 0.42)
15-19	5176 (12.04%)	41168 (9.72%)	1.217 (1.15, 1.29)
20-24	5249 (12.21%)	45934 (10.85%)	0.736 (0.69, 0.78)
25-29	4313 (10.03%)	39171 (9.25%)	1.325 (1.25, 1.41)
30-34	3732 (8.68%)	33937 (8.01%)	1.299 (1.22, 1.38)
35-39	6792 (15.8%)	59994 (14.17%)	0.94 (0.89, 1)
40-49	523 (1.22%)	4224 (1%)	0.966 (0.92, 1.02)
50-59	6644 (15.45%)	65560 (15.48%)	0.95 (0.91, 1)
60-69	3630 (8.44%)	49030 (11.58%)	0.997 (0.96, 1.04)
70-79	1787 (4.16%)	31556 (7.45%)	0.986 (0.95, 1.02)
80+	1412 (3.28%)	25600 (6.05%)	1.008 (0.98, 1.04)
Sex			
Female	21961 (51.08%)	232798 (54.97%)	Reference
Male	21034 (48.92%)	190674 (45.03%)	1.205 (1.18, 1.23)
Race			
White	14465 (33.64%)	86010 (20.31%)	Reference
Native American or Alaskan	63 (0.15%)	422 (0.1%)	0.765 (0.58, 1.01)
Asian	2066 (4.81%)	20229 (4.78%)	0.556 (0.53, 0.58)
Black or African American	341 (0.79%)	2870 (0.68%)	0.545 (0.48, 0.61)
Native Hawaiian or Pacific Islander	152 (0.35%)	2037 (0.48%)	0.363 (0.31, 0.43)
Other	7900 (18.37%)	54667 (12.91%)	0.578 (0.56, 0.6)
Unknown	18008 (41.88%)	257237 (60.74%)	0.29 (0.28, 0.3)
Zip Code POP with Bachelors			
1st Quartile	18382 (42.75%)	115455 (27.26%)	Reference
2nd Quartile	11291 (26.26%)	102569 (24.22%)	0.751 (0.64, 0.89)
3rd Quartile	7348 (17.09%)	100281 (23.68%)	0.549 (0.44, 0.69)
4th Quartile	5974 (13.89%)	105167 (24.83%)	0.482 (0.37, 0.62)
Zip Code POP insured			
1st Quartile	18911 (43.98%)	118530 (27.99%)	Reference
2nd Quartile	10882 (25.31%)	101620 (24%)	0.776 (0.67, 0.89)
3rd Quartile	7621 (17.73%)	101499 (23.97%)	0.681 (0.56, 0.83)
4th Quartile	5581 (12.98%)	101823 (24.04%)	0.508 (0.41, 0.63)
Zip Code Pop Density (1000ppl/km^2)			1 (0.92, 1.08)

* Adjusted for all covariates listed plus zip code median income and time of test in days

† Abreviations: CI = confidence interval, POP = percentage of population


Model time gam with interaction between days and median income
Odds of testing COVID positive
1.25
1.00
0.75
0.50
0.25
Intercept
5–9
10–14
15–19
20–24
25–29
30–34
35–39
40–49
50–59
60–69
70–79
80+
Male
Native American
Asian
Black
Pacific Islander
Other Race
Unknown Race
Bachelors Q2
Bachelors Q3
Bachelors Q4
Insured Q2
Insured Q3
Insured Q4
Pop Density
Median Income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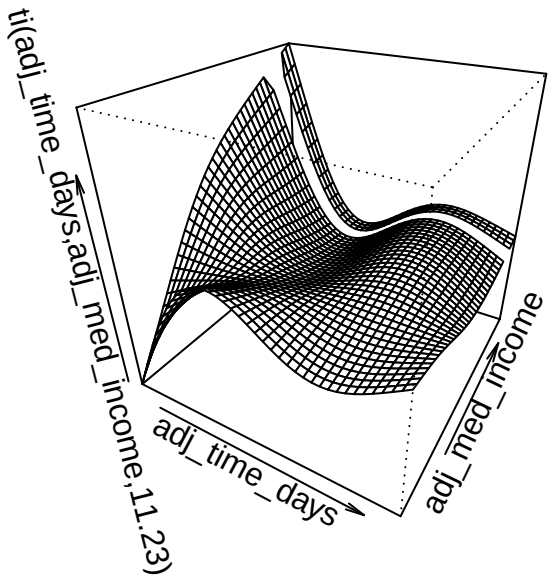
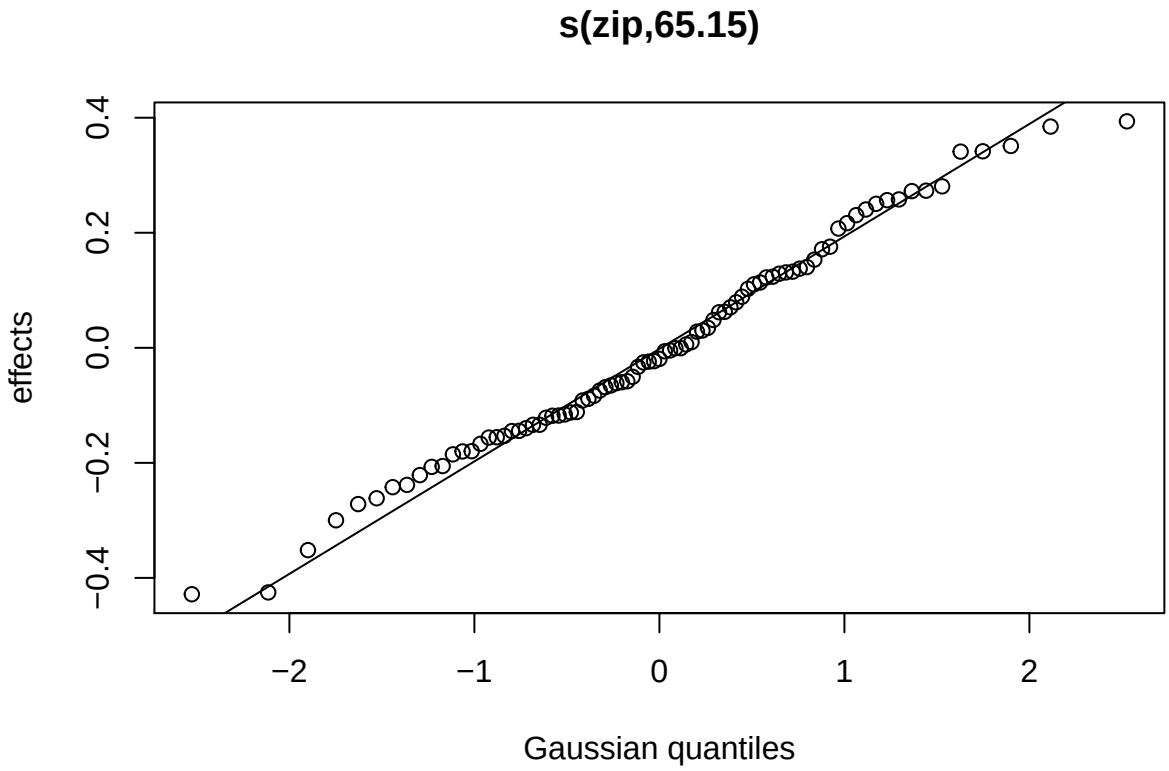
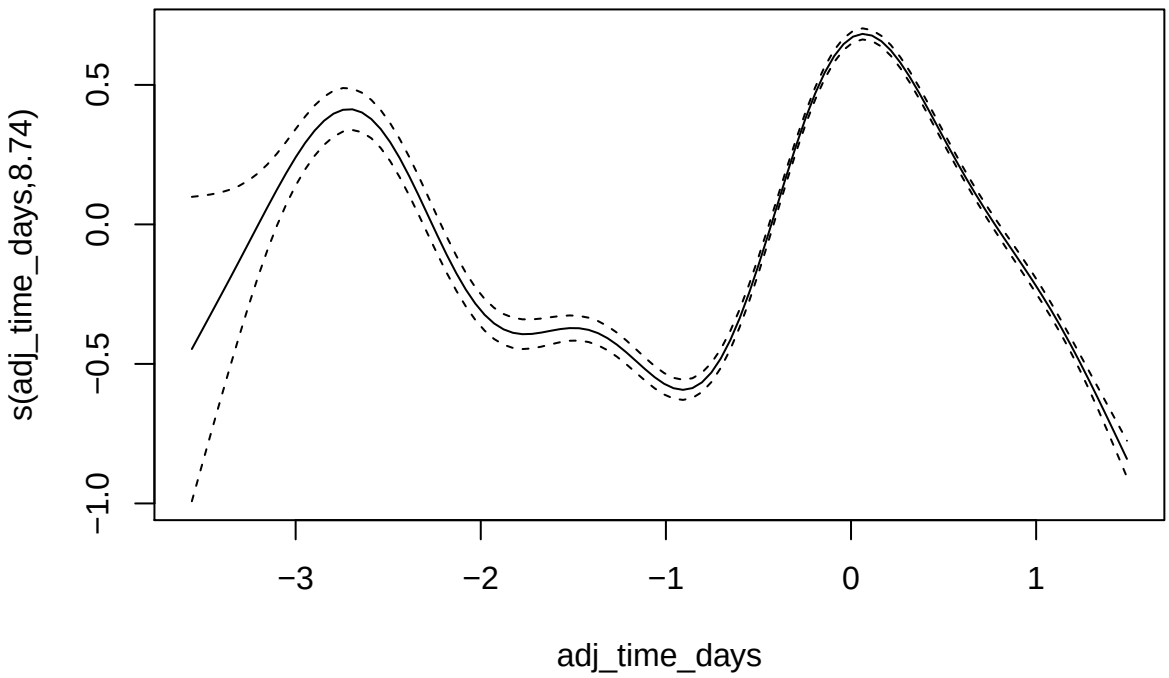
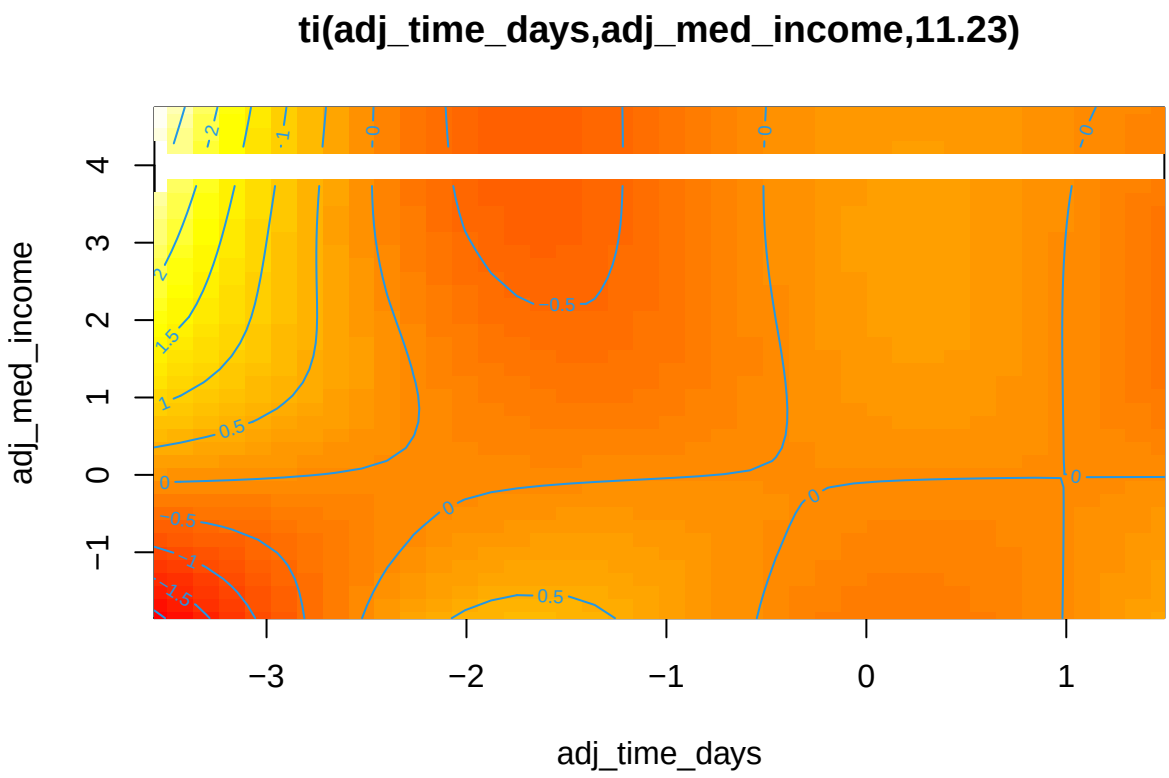
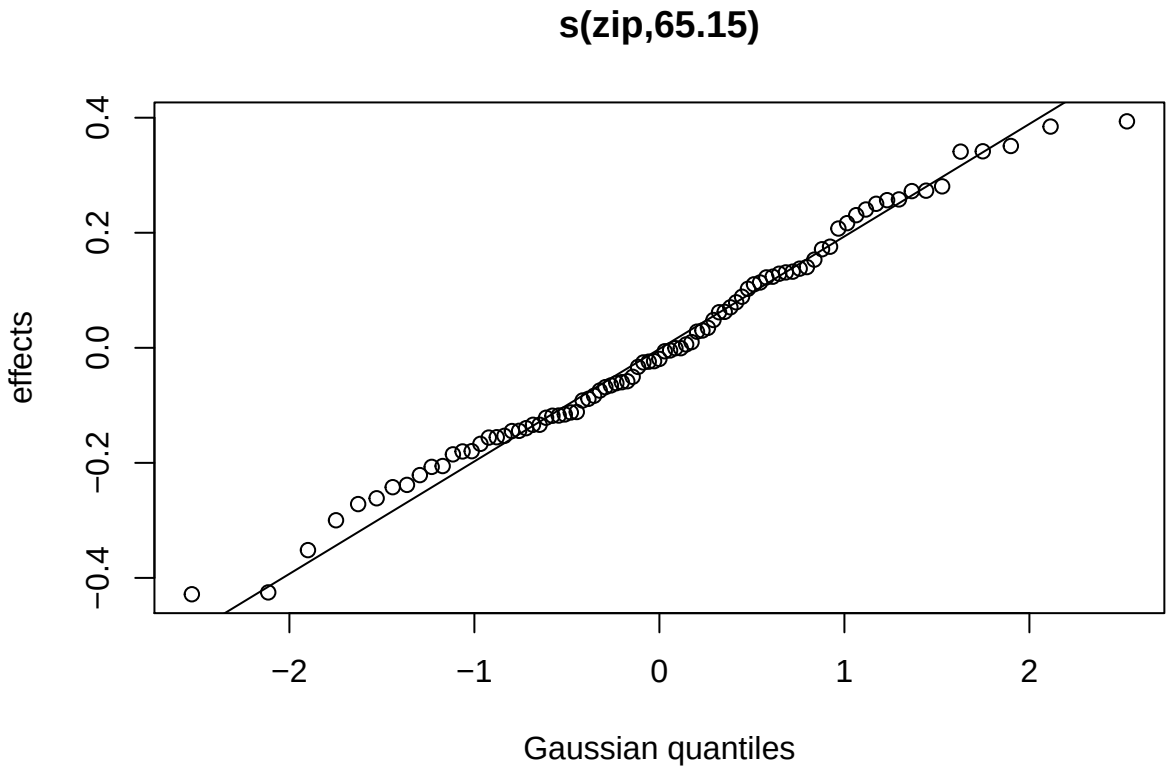
0.5
0.0
−0.5
−1.0
−3
−2
−1
0
1
adj_time_days

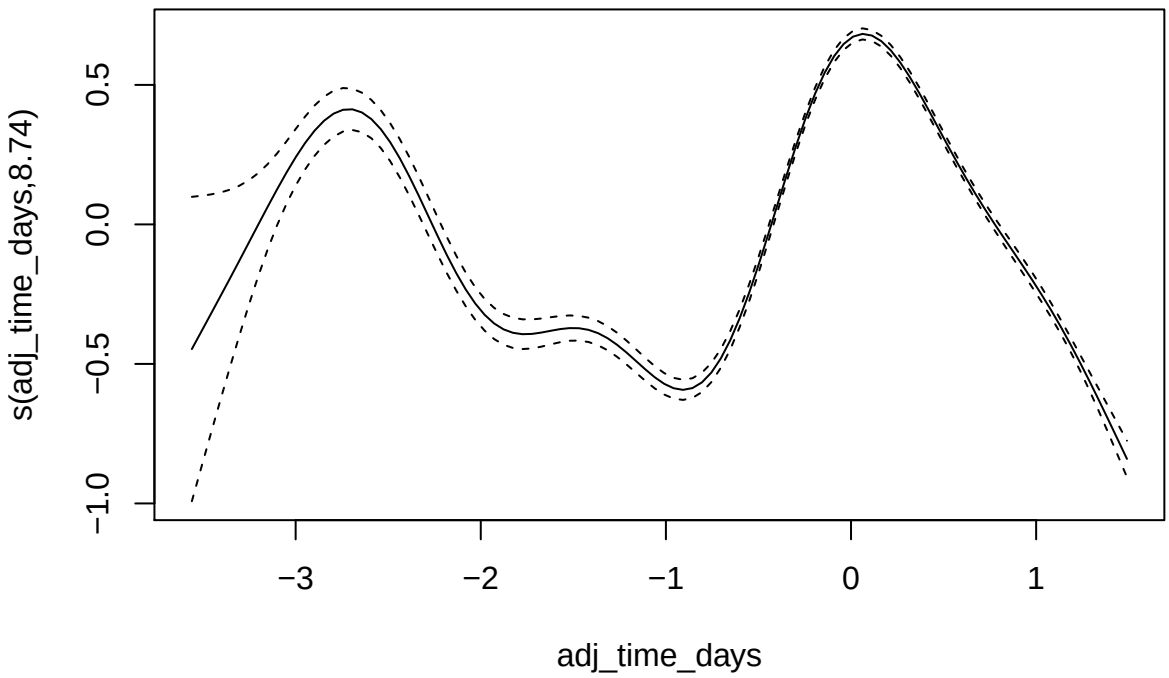

ti(adj_time_days,adj_med_income,11.23)
adj_time_days
adj_med_income

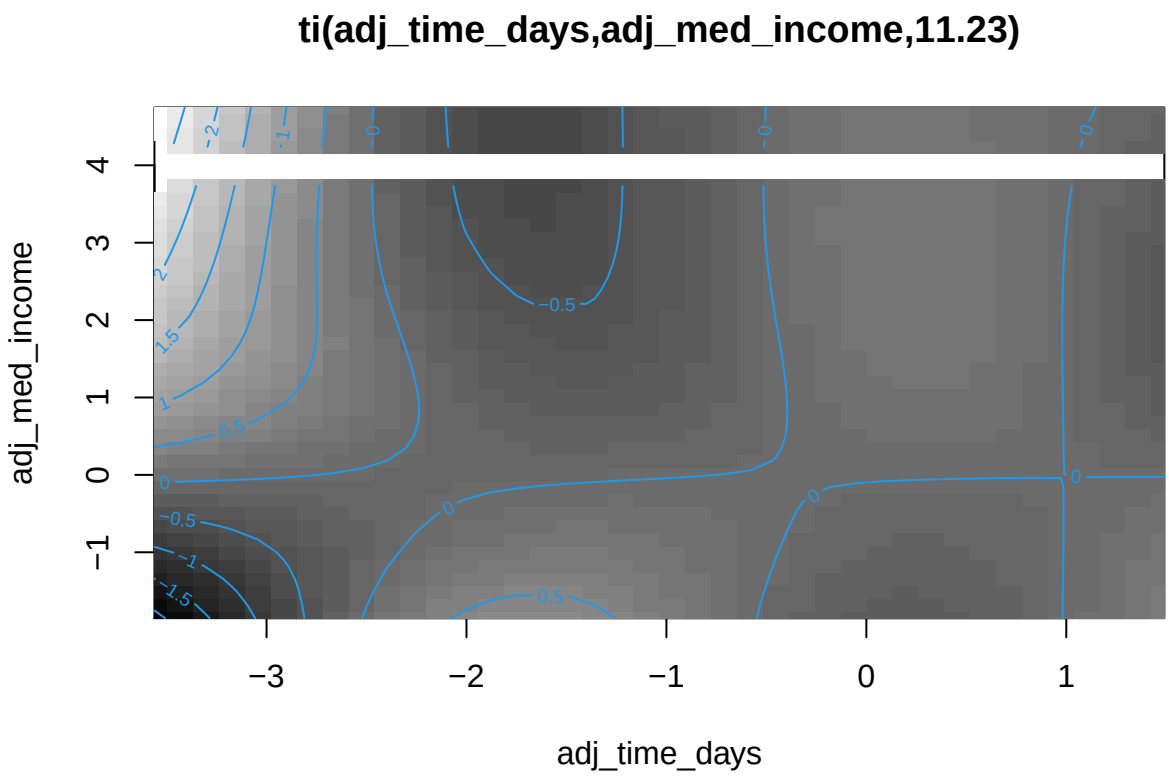

s(zip,65.15)
effects
−0.4
−0.2
0.0
0.2
0.4
−2
−1
0
1
2
Gaussian quantiles

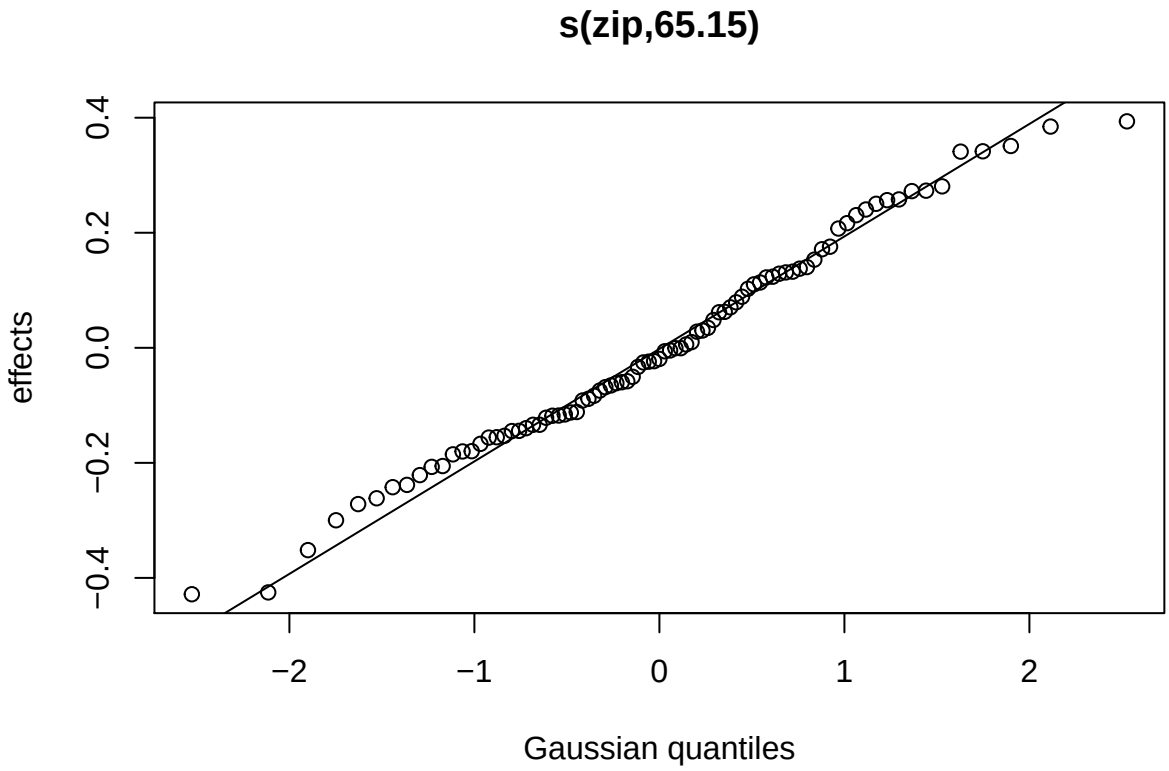

s(adj_time_days,8.74)
0.5
0.0
−0.5
−1.0
−3
−2
−1
0
1
adj_time_days


ti(adj_time_days,adj_med_income,11.23)
adj_med_income
adj_time_days
−3
−2
−1
0
1
−1
0
1
2
3
4


s(zip,65.15)
effects
−0.4
−0.2
0.0
0.2
0.4
−2
−1
0
1
2
Gaussian quantiles


s(adj_time_days,8.74)
0.5
0.0
−0.5
−1.0
−3
−2
−1
0
1
adj_time_days


ti(adj_time_days,adj_med_income,11.23)
adj_med_income
adj_time_days
−3
−2
−1
0
1
−1
0
1
2
3
4


s(zip,65.15)
effects
−0.4
−0.2
0.0
0.2
0.4
−2
−1
0
1
2
Gaussian quantiles